

Customer No.: 31561
Application No.: 10/707,686
Docket NO.: 11844-US-PA

REMARKS

Present Status of Application

Claims 1-22 remain pending in the application. The Office Action mailed April 26, 2005, rejected claims 1, 3, 5, 7-10, 12, 18 and 20-22 under U.S.C. 102(e) as being anticipated by Smith (US Patent No. 6,437,240). Claims 1, 3, 5-7, 9-10, 12, 14-15, 18-20 and 22 were rejected under U.S.C. 102(e) as being anticipated by Hoffman et al. (US Patent No. 6,737,750). Claims 2 and 11 were rejected under U.S.C. 103(a) as being unpatentable over Hoffman in view of Huang (US Patent No. 6,777,819). Claims 6 and 19 were rejected under U.S.C. 103(a) as being unpatentable over Smith in view of Ikeda (US Patent No. 6,518,666). Claims 4 and 13 were rejected under U.S.C. 103(a) as being unpatentable over Smith or Hoffman in view of Nishioka et al. (JP-02000195994A). Claims 16 and 17 were rejected under U.S.C. 103(a) as being unpatentable over Hoffman.

Claims 1-2 and 10-11 have been amended. Applicant believes that these changes do not introduce new matter and reconsideration of those claims is respectfully requested. In view of the above amendments and the following discussions, a notice of allowance is respectfully solicited.

Discussion for 35 U.S.C. 102 and 103 rejections

Claims 1, 3, 5, 7-10, 12, 18 and 20-22 were rejected under U.S.C. 102(e) as being anticipated by Smith (US Patent No. 6,437,240). Claims 1, 3, 5-7, 9-10, 12, 14-15, 18-20 and 22 were rejected under U.S.C. 102(e) as being anticipated by Hoffman et al. (US

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Patent No. 6,737,750). Claims 2 and 11 were rejected under U.S.C. 103(a) as being unpatentable over Hoffman in view of Huang (US Patent No. 6,777,819). Claims 6 and 19 were rejected under U.S.C. 103(a) as being unpatentable over Smith in view of Ikeda (US Patent No. 6,518,666). Claims 4 and 13 were rejected under U.S.C. 103(a) as being unpatentable over Smith or Hoffman in view of Nishioka et al. (JP-02000195994A). Claims 16 and 17 were rejected under U.S.C. 103(a) as being unpatentable over Hoffman.

Claims 1 and 10 have been amended for clarification purposes, while claims 2 and 11 have been amended for correction purposes.

Applicant respectfully asserts that the structure of claim 1 or 10 is patentably distinct from the prior art references. Especially, the structure comprises "a heat sink, set over the chipset, wherein the heat sink has a surface area greater than the chip and is unconnected to the carrier" and "an encapsulating material layer, wherein a top surface of the encapsulating material layer is higher than that of the heat sink and the encapsulating material layer is formed in a simultaneous molding process".

Smith discloses a microelectronic assembly including a plurality of fusible masses 1550a for connecting the chip 1524a/b to the flexible element 1512. The chip 1524a/b is connected to the heat sink 1542 through thermally conductive masses 1550b. The flowable material 1534 is disposed between the heat sink 1542, the element 1512 and the ring 1546.

The Office Action considered at least Smith's element 1512, heat sink 1542 and

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flowable material 1534 being respectively comparable to the carrier, the heat sink and the encapsulating material layer of this invention.

Applicant respectfully disagrees with this interpretation.

As shown in Smith's Fig. 25, the flowable material 1534 is disposed between the heat sink 1542 and the element 1512, and the top surface of the flowable material 1534 is lower than that of the heat sink 1542. Obviously, Smith's flowable material is clearly different from the encapsulating material layer of this invention because Smith's flowable material does not cover the heat sink. Hence, Smith at least fails to disclose "an encapsulating material layer, wherein a top surface of the encapsulating material layer is higher than that of the heat sink and the encapsulating material layer is formed in a simultaneous molding process", as recited in amended claims 1 and 10.

Hoffman discloses a semiconductor package including heat spreaders thermally coupled between two stacked dies. As shown in Fig. 13, heat spreaders 33/35 are connected to the dies 12/16 and connected to the substrate 10. The heat spreaders transfer heat from the dies to a heat sink of the substrate (see Abstract).

The Office Action considered at least Hoffman's substrate 10, heat spreader 33/35 and encapsulant 19 being respectively comparable to the carrier, the heat sink and the encapsulating material layer of this invention.

Applicant respectfully disagrees with this interpretation.

As discussed above, Hoffman's heat spreader 33/35 are connected to the substrate 10 for heat dissipation purposes. Therefore, Hoffman at least fails to teach or suggest "a

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heat sink, set over the chipset, wherein the heat sink has a surface area greater than the chipset and is unconnected to the carrier", as recited in amended claims 1 and 10 of this invention.

Accordingly, neither Smith nor Hoffman teaches or discloses all limitations as recited in the amended independent claim 1 or 10. Claims depending from claims 1 and 10 therefore are not anticipated by the reference Smith or Hoffman for the reasons noted above, as well as for the additional features recited therein. Therefore, reconsideration and withdrawal of these 102 rejections are respectfully requested.

The Office Action further relied on Ikeda, Nishioka or Huang for teaching the lacking features.

As discussed above, the structure of the present invention is patentably distinct from the prior art references Smith or Hoffman because either reference fails to disclose all limitations of claim 1 or 10. However, the reference Ikeda, Nishioka or Huang is unable to remedy the deficiencies of the references Smith and Hoffman. Therefore, it is respectfully submitted that claims 2, 4, 6, 11, 13, 16-17 and 19 patentably distinguish over the cited references, either alone or in combination, for at least the reasons stated above as well as for the additional features that these claims recite.

Withdrawal of these rejections under 35 USC 103(a) is respectfully requested.

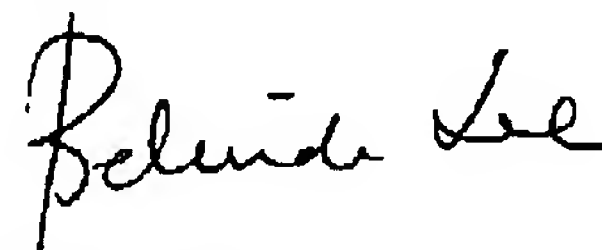
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CONCLUSION

In view of the foregoing, it is believed that all pending claims are in proper condition for allowance. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

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Respectfully submitted,



Belinda Lee

Registration No.: 46,863

Jianq Chyun Intellectual Property Office
7th Floor-1, No. 100
Roosevelt Road, Section 2
Taipei, 100
Taiwan
Tel: 011-886-2-2369-2800
Fax: 011-886-2-2369-7233
Email: belinda@jicpgroup.com.tw
Usa@jicpgroup.com.tw